

We claim:

1. A method for specifically detecting chitin and not cellulose in a sample, comprising the steps of:

5 (a) contacting the sample with a first reagent comprising a chitin-binding domain (CBD) and optionally fused to a maltose-binding domain (MBD); and

(b) detecting specifically whether chitin and not cellulose is present in the sample by the binding of CBD to chitin.

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2. A method as recited in claim 1, wherein the CBD in the reagent is conjugated to a reporter.

3. A method as recited in claim 2, wherein the reporter is
15 selected from the group consisting of a radioactive material, a fluorophore, a dye, an electron-dense compound, and an enzyme.

4. A method as recited in claim 1, wherein the sample
20 comprises a plant tissue, an agricultural product, an animal tissue, a human tissue, a contact lens, a prosthetic device, or an air filter.

5. A method as recited in claim 1, wherein the sample
25 comprises an animal body fluid, a human body fluid, a plant fluid, potable water, or a beverage.

6. A method as recited in claim 1, wherein the contacting step additionally comprises contacting the sample with a second reagent comprising an antibody to CBD or an antibody to a protein fused to CBD.

7. A method as recited in claim 6, wherein the first reagent additionally comprises a reporter.

8. A method as recited in claim 7, wherein the reporter is selected from the group consisting of a radioactive material, a fluorophore, a dye, an electron-dense compound, and an enzyme.

9. A method according to claim 1, wherein the CBD has a carbohydrate-binding module corresponding to CBM12.

10. A method according to claim 1, wherein step (a) is preceded by bleaching the sample.

11. A method according to claim 1, wherein the CBD is obtained from chitinase AI from *Bacillus circulans*.

12. A kit, comprising: an immobilized CBD reagent.

13. A kit according to claim 12, further comprising instructions for use of the immobilized CBD reagent for detecting chitin.

5 14. A kit according to claim 12, further comprising a soluble CBD carrier protein fusion molecule linked to a reporter.

15. A kit according to claim 14, wherein the carrier protein is MBP.

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16. A kit according to claim 14, wherein the reporter is a rhodomaine or fluorescein dye.

17. A kit according to claim 13, wherein the CBD is
15 derived from chitinase AI.

18. A method for detecting chitin in a sample, comprising:

(a) obtaining an immobilized first CBD;

(b) adding the sample and allowing any chitin in the
20 sample to bind to the immobilized CBD;

(c) adding a second CBD for binding the immobilized chitin of step (b) wherein the CBD is optionally linked to a protein carrier and a reporter molecule or to reporter molecule only and wherein the first CBD and the second CBD are obtained from the
25 same or different chitinase; and

(d) detecting the chitin in the sample.

19. A method according to claim 18, wherein the second
CBD is linked to a carrier protein, wherein the carrier protein is
5 MBP.

20. A method according to claim 19, wherein step (d)
further comprises detecting the chitin by means of a labeled
antibody.
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21. A method according to claim 19, wherein the first CBD
is immobilized by means of a chemical linker.

22. A method according to claim 19, wherein the first CBD
15 is immobilized on a substrate selected from: a bead, a gel, a
filter, a column and a reaction vessel surface.